Journal of Testing and Evaluation
Table of Contents
Volume 25, 1997

No. 1, January

Ultrasonic Characterization of Interphasial Properties in Sapphire/Haynes 214 Composites—W. HUANG, Y. C. CHU, AND S. I. ROKHLIN 1

Determination of Thermal Properties of Pavement Materials and Unbound Aggregates by Transient Heat Conduction—S.-A. TAN, T.-F. FWA, C.-T. CHUAI CHIP, AND B.-H. LOW 15

Analysis of Plowing and Adhesive Effects in the Rolling Ball Tack Method for Pressure Sensitive Adhesives—Z. MIYAGI, N. YAMADA, N. URAHAMA, AND K. YAMAMOTO 23

Elastic Compliance of the Compact-Tension Specimen Comprising Two Linear-Elastic Materials Bonded with a Thin Layer—J. M. MCNANEY, R. HAVENS, AND R. O. RITCHIE 28

Calibrating Instrument Readings Using a Bivariate Confidence Interval—BLAIR J. MCDONALD AND JANICE J. TRAUTNER 36

Eddy Current Decay Resistivity Measurements Using a Digital Voltmeter—C. Y. HUA, L. C. MCDONALD, AND K. T. HARTWIG 41

Experimental Determination of the Cooling Curve for Production of Continuous-Cast Steel Billets—WADE H. BAILEY, JR. 49

Testing and Design of CMOS D-Latches—CHERIF AISSI AND JIDE OLANIYAN 52

Hot Plane Strain Compression Testing of Aluminum Alloys—H. SHI, A. J. MCLAREN, C. M. SELLARS, R. SHAHANI, AND R. BOLINGBROKE 61

Neural Network Approach for Prediction of Wrinkling Limit in Square Metal Sheet Under Diagonal Tension—S. DI AND P. F. THOMSON 74

High Resolution *R*-Curve Characterization of the Fracture Toughness of Thin Sheet Aluminum Alloys—M. J. HAYNES AND R. P. GANGLOFF 82

Development and Evaluation of a Method to Measure Traction on Turfgrass Surfaces—ANDREW S. MCNITT, ROBERT O. MIDDOUR, AND DONALD V. WADDINGTON 99

The Relationship Between Porosity and Air Permeability of Woven Textile Fabrics—HELEN H. EPPS AND KAREN K. LEONAS 108

International Symposium on Slip Resistance: The Interface of Man, Footwear, and Walking Surfaces

Comparison of Walkway Safety Tribometers: Part Two—M. I. MARPET AND D. H. FLEISCHER 115

The Use of the Tortus and the Pendulum with the 4S Rubber for the Assessment of Slip Resistance in the Laboratory and the Field—VINCE K. DRAVITZKI AND SHIRLEY M. POTTER 127

Kinematic Methods for Quantifying Loss of Balance While Negotiating a Curved Path on a Slippery Surface—BINGSHI WANG, AMIT BHATTACHARYA, ANGSHMAN BAGCHEE, WENJIAN WANG, AND PAUL A. SUCCOP 135

The Effect of Footwear Midsole Hardness and Thickness on Proprioception and Stability in Older Men—EDWARD WAKED, STEVEN ROBBINS, AND JACQUELINE MCCLAREN 143

Book Review 149

No. 2, March

Repeatability and Reproducibility for Pass/Fail Data—JOHN MANDEL 151

Low-Temperature Aging Kinetics in Cast Duplex Stainless Steels: Experimental Characterization—J. J. GONZÁLEZ, F. GUTIÉRREZ-SOLANA, L. SÁNCHEZ, AND J. SETIÉN 154

© 1997 by the American Society for Testing and Materials

Effect of Construction Adhesive and Joist Variability on the Deflection Behavior of Light-Frame Wood Floors—PATRICK J. PELLICANE AND GEOFFREY ROBINSON 163

Experimental Assessment of Four Composite Material Shear Test Methods—DONALD F. ADAMS AND ERIC Q. LEWIS 174

Effects of Surface Geometry on Fabric Friction—JOSEPH O. AJAI AND H. M. ELDER 182

Symposium on International Advanced Vehicle/Transportation Infrastructure Technology 189

Relationship Between Statistical Distributions of Traffic Loads and Pavement Responses—DAVID A. NEWCOMB, BRUCE A. CHADBOURN, AND DAVID D. VAN DEUSEN 190

Calibration of Weigh-in-Motion Characteristics Through Dynamic Vehicle Simulation—A. T. PAPAGIANNAKIS 197

Evaluation of Overhead and In-Ground Vehicle Detector Technologies for Traffic Flow Measurement—LAWRENCE A. KLEIN, MICHAEL R. KELLY, AND MILTON K. MILLS 205

Symposium on Needs and Applications in Precision Measurement and Monitoring of Wear 215

Needs and Challenges in Precision Wear Measurement—PETER J. BLAU 216

Needs and Applications in Precision Measurement and Monitoring of Wear—KENNETH G. BUDINSKI 226

The Nonvibrating Kelvin Probe and Its Application for Monitoring Surface Wear—E. S. ZANORIA, K. HAMALL, S. DANYLUK, AND A. L. ZHARIN 233

The Significance of Nonlinear Motion in the Wear Screening of Orthopaedic Implant Materials—A. WANG, V. K. POLININI, A. ESSNER, M. SOKOL, D. C. SUN, C. STARK, AND J. H. DUMBLETON 239

Precision Profilometry of Wear Scars on Curved Surfaces—C. S. YUST AND P. J. BLAU 246

Theory and Application of a Micro-Scale Abrasive Wear Test—K. L. RUTHERFORD AND I. M. HUTCHINGS 250

Technical Note: A Low-Cost, Computer-Controlled Adiabatic Calorimeter for Determining the Heat of Hydration of Concrete—G. J. GIBBON, Y. BALLIM, AND G. R. H. GRIEVE 261

Testing Forum: First Continuous Remote Bridge Monitoring System Ensures Safe Operation of 65-Year-Old Rolling Bascule Bridge—DAVID PRINE 267

No. 3, May

A Methodology for the Fire Resistance Testing of Structural Components at Reduced Scale—D. J. O'CONNOR, B. MORRIS, AND G. W. H. SILCOCK 273

Mixed Mode Fiber Pull-Out Equipment: Applications and Results—CHARLES K. Y. LEUNG AND Y. PHILIP GENG 283

Analysis of Fatigue Data with Runouts Based on a Model with Nonconstant Standard Deviation and a Fatigue Limit Parameter—FRANCIS G. PASCUAL AND WILLIAM Q. MEEKER 292

A Modified Normalization Method for Developing J-R and CTOD-R Curves with the LMN Function—CLEBER J. F. O. FORTES AND FERNANDO L. BASTIAN 302

Consensus Values and Reference Values Illustrated by the Charpy Machine Certification Program—JACK C.-M. WANG AND JOLENE D. SPLETT 308

Evaluation of the Fibrillation Behavior of Oriented Polymer Tapes Using a Tensile Test Method—S. J. MAHAJAN AND B. L. DEOPURA 315

Statistical Design of Experiments in Metal Cutting—Part One: Methodology—V. P. ASTAKHOV, M. O. M. OSMAN, AND M. AL-ATA 322

Statistical Design of Experiments in Metal Cutting—Part Two: Applications—V. P. ASTAKHOV, M. O. M. OSMAN, AND M. AL-ATA 328

Symposium on Chemical Data Standards: Database, Data Interchange, and Information Systems

Computerized Chemical Structural Information (CSI) and Associated Data: A Study of Computerized CSI Pathways Used by Synthesis Chemists, and Recommendations for Guidelines—CHARLES E. GRAGG 337

An Expert Infobase System for Tracing Hazardous Materials in Engineering Documents and System Requirements for Materials Information Standardization—AUNG SAN U AND BARBARA TOOMER 341

Material Specifications of Advanced Ceramics and Other Issues in the Use of Property Databases with Corrosion Analysis Models—RONALD G. MUNRO 349

Technical Note: Effect of Preloading on the Strength of Soda-Lime Glass—XIAOLIE CHEN AND MASANOBU MATSUMURA 354

Technical Note: Estimating Creep Rates During Tensile Cyclic Loading—A. ARBEL 358

No. 4, July

A Comparison of Calculated Geometric Surface Area and Measured BET Surface Area for a Metal Powder—ALLAN SCHRØDER-PEDERSEN, JOHN KJØLLER, AND BENT LARSEN 365

A New Apparatus for Measuring the Drainage Properties of Porous Asphalt Mixes—TAN SIEW ANN, FWA TIEN FANG, AND CHUAI CHIP TIONG 370

A Constitutive Model for Metals at High Strain Rates Accurately Determined by the Tensile Impact Recovery Experimental Technique—CONGYUE WANG, YUANXING ZHOU, AND YUANMING XIA 378

Characterization of Styrene-Butdiene-Styrene Polymer Modified Bitumens—Comparison of Conventional Methods and Dynamic Chemical Analyses—X. LU AND U. ISACSSON 383

Measurement of the Fracture Energy of Interfaces in Composites Through Sandwich-Type Chevron-Notched Specimens—LEON L. SHAW 391

Development and Precision Testing of a Standard Test Method for Screening Fuels in Soils—SUSAN S. SORINI AND JOHN F. SCHABRON 400

Shear Lap-Joint Testing with Rubber Substrate—D. J. CHANG AND W. D. HANNA 406

A Test Method to Determine the Relative Humidity Dependence of the Air Permeability of Woven Textile Fabrics—PHILLIP W. GIBSON, A. ALBAZ ELSAIID, CYRUS E. KENDRICK, DONALD RIVIN, AND MAJID CHARMCHI 416

Fatigue and Creep Crack Growth in Fine Sand Asphalt Materials—CAREL P. KLEEMANS, JAN ZUIDEMA, RUTGER L. KRANS, JAPP M. M. MOLENAAR, AND FEDDE TOLMAN 424

Strain-Controlled Cumulative Fatigue with Mean Strains and High-Cycle and Low-Cycle Interaction—YI GONG AND MICHAEL P. NORTON 429

Regression Analysis as an Aid in Making Oboe Reeds—KATHERINE CEASAR-SPALL AND JAMES C. SPALL 439

Development of a Road Roughness Profile Delineation Procedure—MICHAEL DIVINSKY, SHIMON NESICHI, AND MOSHE LIVNEH 445

Effective Vulnerability Assessment of Tamper-Indicating Seals—ROGER G. JOHNSTON 451

New Technique for Evaluating Damping of Longitudinal Free Vibration in Wood-Based Materials—ZHIYONG CAI, MICHAEL O. HUNT, KENNETH J. FRIDLEY, AND DAVID V. ROSOWSKY 456

Book Review 461

No. 5, September

Residual Stresses in Plastic Pipes by Laser Speckle Technique—M. A. SEIF, H. A. KISHAWY, AND M. A. HASSAN 465

Relating Triaxial Test Properties of Asphalt Mixtures to Mix Parameters Determined by Marshall Stability Test—T. F. FWA, S. A. TAN, AND B. H. LOW 471

Instantaneous Coefficient of Linear Thermal Expansion—A New Definition—V. S. BHATTACHAR 479

Fatigue Testing of Microspecimens from a Weldment—B. YUAN AND W. N. SHARPE, JR. 485

Effect of Specimen Thickness on the Long-Life Fatigue Performance of a Randomly-Oriented Continuous-Strand Glass-Mat-Reinforced Polypropylene Composite—R. E. LITTLE 491

Effects of Laundering and Exposure to Light on Environmentally-Improved Fabrics—S. LEIMER, M. A. MOORE, AND E. GOLDSMITH 497

Ultrasonic Stress Evaluation in a Compressor Rotor—D. E. BRAY, W. TANG, AND D. GREWAL 503

Measurement of Load Distribution in Multiple-Bolted Wood Connections—J. W. STELMOKAS, A. G. ZINK, J. L. LOFERSKI, AND J. D. DOLAN 510

An Ultrasonic Technique for Monitoring Automotive Components—R. LOPES, A. MAZZERANGHI, G. RONCHIATO, AND D. VANGI 516

Technical Note: Transverse Vibration of a Simply Supported Beam with Symmetric Overhang of Arbitrary Length—J. F. MURPHY 522

Testing Forum: Hoechst Celanese Improves Consistency of Cellulose Acetate Through Automated Viscosity Measurement—L. HAWLEY 525

No. 6, November

A PC-Based Near Real-Time Ultrasonic Imaging System for Flaw Characterization—R. S. ANAND AND V. KUMAR 529

A Tapered Double-Cantilever-Beam Specimen Designed for Constant-K Testing at Elevated Temperatures—W. BERES, A. K. KOUL, AND R. THAMBURAJ 536

Determination of η_{pl} Factor: Influence of Side Grooving—A. N. CASSANELLI, L. A. DE VEDIA, AND R. HERRERA 543

A Study of the Prediction of Roundness Variation in Honing Using Hone Dynamics—J.-D. KIM AND M.-S. CHOI 556

Application of Analysis of Variance (ANOVA) Statistical Methods to Breaking Load Corrosion Test—I. A. GOLINKIN, D. D. RUFF, E. P. KVAM, G. P. MCCABE, AND A. F. GRANDT, JR. 565

Determination of Tensile Properties at Increased Strain Rates and Various Temperatures—H. J. SCHINDLER AND M. VEIDT 571

Local Versus Global Strain Measurement of a Polymeric Geogrid—S. W. PERKINS, J. L. SCHULZ, AND J. A. LAPEYRE 576

Testing Forum: Experiments Increase Understanding of Chronic Obstructive Lung Disease—B. KAYSER 584

Index 591